CLAIMS

1. A high-capacity composite oscillating device comprising n-sets, that is, two or more sets, of bolt-tightened Langevin-type ultrasonic transducers having the identical characteristics disposed at regular intervals on an outer periphery portion of a disk-shaped oscillating body so as to oppose to each other, the disk-shaped oscillating body having a center which serves as an oscillation loop, wherein the BLTs are driven in such a manner that the opposed BLTs are driven in a opposite-phase mode respectively, and the adjacent sets of BLTs are driven in a oscillating mode in which the phase is shifted by π/n, so that composite oscillations occur at the center portion of the disk-shaped oscillating body.

2. The high-capacity ultrasonic composite oscillating device according to Claim 1, wherein a loop segment of oscillation of an oscillating rod that oscillates in a composite flexure oscillating mode is connected to the center portion of the disk-shaped oscillating body.

3. A high-capacity ultrasonic composite oscillating device wherein the disk-shaped oscillating bodies are connected in series with an oscillating rod with while synchronizing oscillation phases so that ultrasonic transducers in the respective pairs on the respective disk-shaped oscillating bodies are driven in parallel or

independently.